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ABSTRACT

Information technology is very evident in the explosion of on-line education courses. This research looks at online courses, identifies significant issues in the development of these courses, and determines characteristics of learners enrolled in these courses. An emerging phenomenon is investigated and issues inherent in the development of a new educational paradigm are explored. Using a case study methodology, relevant data, perceptions, and descriptions of major issues surrounding these courses are gathered from students and course developers. The main case study looks at an online professional development course, "Telecommunications and Information Access for Educators," which explores information technologies through electronic mail, computer teleconferencing, and remote database searching. Correspondence was archived, electronic mail was stored on disk, field notes were compiled, electronic participant observations were completed, and formal and informal interviews were conducted for over 95 students. Through a literature review and interviews with course developers, educators, or students who have taught or taken online courses, information was gathered on issues of design, instruction, and support. Other types of online courses are investigated. Through these investigations pedagogical, organizational, and institutional issues are identified to consider in the design, development, and implementation. Recommendations for teachers and learners considering online education courses are given and a research agenda is proposed. (Contains eight references.) (Author/MAS)

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Online Courses: What Have We Learned?

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Online Courses: What Have We Learned?

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Abstract:

Nowhere is information technology more evident than in the explosion of on-line education courses. This research looked at on-line courses, identified significant issues in the development of these courses, and determined characteristics of learners enrolled in these courses. It is timely to study these courses since it has become essential that educators take the lead in assuring that courses are pedagogically sound, organizationally strong, and institutionally supported.

This research investigated an emerging phenomenon and explored issues inherent in the development of a new educational paradigm. The researcher describes formative research on one graduate on-line course and reports investigation of other types of on-line courses. Through these investigations pedagogical, organizational, and institutional issues were identified to consider in the design, development, and implementation. Recommendations for teachers or learners considering online education courses are given and a research agenda is proposed.

Keywords: Distance Learning, Information Technology, Case Studies

Introduction

Telecommunication networks are changing the nature of teaching and learning in all aspects of education. Nowhere is this more evident than in the explosion of on-line education, courses offered primarily or entirely through computer mediated communications. Through past experiences much has been learned regarding the elements essential for a successful experience. The purpose of this research was to look carefully at on-line courses and identify significant issues in their development and presentation. It is timely to study these courses now so that educators can take a strong leadership role in assuring that courses are pedagogically sound, organizationally strong, and institutionally supported.

This research investigates the emerging phenomenon and explores the issues inherent in the development of a new educational paradigm. The researcher will describe formative research on one graduate on-line course and report investigation of other types of on-line courses. Through these investigations pedagogical, organizational and institutional issues are identified that must be considered in the design, development, and implementation of this type of education.

Theoretical Framework

The emphasis on lifelong learning reflects the growth in the non-traditional student population. These individuals frequently must overcome concerns about time, distance, and money that traditional students do not have. Online and independent learning offers one potential solution to these issues. To date, however, the traditional distance education literature has focused on the design and implementation of correspondence or satellite broadcast delivery courses. That research provides some parallels, but it does not directly inform the design and development questions of online courses.

Examples of traditional courses being offered using a variety of telecommunications methods (electronic mail, computer conferencing, satellite delivery of instruction) have recently been discussed in the literature.[1] A noticeable evolution has occurred in the growth and acceptance of on-line courses - those in which instruction is delivered entirely or principally via computer mediated communications. Results of other studies of these courses have produced conclusions that show this form of education is effective for well motivated students and as a supplementary method of course delivery.[2] Overall it is clear, however, that one cannot simply take a traditional course and place it on an educational network.

The present research is based on a case study approach of a contemporary set of events that provides description of the social discourse inherent in any on-line interaction. The framework has evolved from discussions with participants regarding their behavior and meaning in this setting, especially as compared to traditional graduate courses. The factors necessary for a successful course have also emerged from the data.

Methods and data sources

This research is of necessity in its formative stage since online delivery of instruction is constantly growing and evolving. The case study provides a good research method for documenting this evolutionary process. By gathering relevant data from students and developers, and also gathering perceptions and descriptions of major issues surrounding these courses, a theoretical framework emerges from the practice.

The main case study looks at an on-line professional development course, *Telecommunications and Information Access*, which offers educators the opportunity to learn about an emerging technological field by using its tools. The course explores information technologies through electronic mail, computer conferencing and remote database searching. As instructor of the course for over 95 students the researcher archived correspondence, stored electronic mail on disk, compiled field notes and completed electronic participant observations. These students came from all levels and types of educational positions and from around the world. The researcher also solicited participant reflections from all students during the data gathering phases and conducted formal and informal interviews with the students.

Through a literature review and interviews with other developers, educators and students who have taught or taken on-line courses, the researcher gathered information on issues of design, instruction and support for this type of education. The data offer rich descriptions from which to understand similarities and differences, and provide insight into the development and success of these courses.

Since any researcher filters her results through personal experiences, it is important to explain the personal interests in this study and the lenses through which the researcher views the world. As instructor of an ongoing online course, the researcher brings personal experiences and perceptions to this research, including personal research and teaching agendas which have focused on CMC and distance learning and a strong commitment to this type of education.

Reflections from the Literature

It is important to begin by accepting that distance learning is an effective and appropriate manner in which to deliver instruction. After an exhaustive review of literature, Moore and Thompson concluded,

> The weight of evidence that can be gathered from the literature points overwhelmingly to the conclusion that teaching and studying at a distance, especially that which uses interactive electronic telecommunications media, is effective, when effectiveness is measured by the achievement of learning, by the attitudes of students and teachers, and by cost effectiveness. (p. 34)[3]

Telecommunications can provide educational opportunities not previously available to learners; for example, it is now possible to overcome distances between teachers and learners, for students to interact with model teachers and subject area experts, and to reduce turnaround time for collegial interactions.

The focus on CMC combines a medium of written discourse with the spontaneity and flexibility of spoken conversation, and is recognized as a powerful tool for group communication and cooperative learning.[4] Harasim summed online courses up as place and time independent, many to many communication that fosters real collaborative learning, and depends on text based communications to promote thoughtful and reflective commentary.[5] Advantages to using this type of distance learning provides instantaneous and asynchronous communication, access to geographically isolated communities, multiple participation within activities, and cultural sharing of diversity and similarities among the people of our world.

Further, online interaction appears to foster social and professional communities and communications. Schrum looked extensively at online social interactions and concluded,

> First, the world of electronic communication assumes and demands that people take initiative for their own learning and growth. ...Second, a case has been made that online communication creates an open and democratic social order, one not dependent on a previously established hierarchical system. ... Experience suggests there must be a personal and compelling reason for the adoption and implementation of any innovation.(p. 193-94)[6]

In an extensive examination of online courses, Mason and Kaye found much to applaud. They noted

> the provision of an opportunity, which never existed before, to create a network of scholars, "space" for collective thinking, and access to peers for socializing and serendipitous exchange.(p. 23)[7]

This advance in the technology has produced a growing number of courses and degrees delivered entirely through CMC. A variety of subject matter courses are being offered or considered for online delivery. In some number of these courses, the technologies themselves provide an opportunity for learners to become familiar with the new media within the context of personalized activities, so that the technology becomes almost invisible within the learning environment. In this way, one course provides both theory and applications within the context of modeling the technology. And yet, online courses are still not typically added to educational discussions as a pedagogical model or method.

Discussion - One case study

The main case study was completed on an independent study course, *Telecommunications and Information Access for Educators.*, jointly offered by the University of Oregon and the International Society for Technology in Education (ISTE), offers students four graduate education credits. Its design was informed by adult learning theory and sensitivity to the myriad needs of busy professionals.[8] In this course, students are required to complete individually useful activities that demonstrate proficiency and understanding as they practice integrating telecommunications into their professional and personal activities.

This course was created to meet the needs of educators all over the world, therefore participants do not have an option to meet face-to-face. Each student begins the course when s/he is ready and has one year to complete the six individual lessons and final project. Since each student is working on individual goals and issues, a great deal of energy is placed on customizing the lessons and activities to meet those individual needs.

Online activities include exploring electronic communities, following scavenger clues and searching remote databases; offline activities require reading and responding to articles and books from the current literature in the field. Students learn the technical skills while looking critically at

the field to identify appropriate uses and current obstacles to the implementation of CMC as an educational tool.

After three years and over 95 enrollees, some general conclusions can be reached. Nonstarters, those who register but never begin the course, represent almost one-third of the total number. Feedback from these nonstarters has been difficult to obtain but from those contacted the work seemed overwhelming and they lacked the ability to stay on a schedule. The remaining two-thirds of the students have already completed the course or are moving rapidly through the lessons.

These individuals represented elementary, secondary, and university institutions, and came to the course with experiences as administrators, district level personnel, classroom teachers, and teacher educators. Their knowledge of telecommunications ranged from complete novice (most participants) to considerable telecommunication experience (a few participants).

Their reasons for taking this course were as varied as their experiences. Many live in relatively isolated communities with no access to university courses. Others made comments such as, "My university doesn't offer any course like this, and I want to know about telecommunications" or "I need to learn this type of thing on my own, in the privacy of my own home." One stated, "I am hoping that I will learn more about telecommunications, the theory behind it, some of the research, and a lot of potential activities." A few have stated that they took the course to gain validation or recognition of "what I learned myself."

Students who find this method appropriate for learning the information report a desire to learn the technology, to explore the relevant materials and basically have strong motivation to finish the course. The motivation may be to increase their salary or to get reimbursement from an employer. For some students motivation has been to create a similar course for their district or university. A small number lament that they are the only ones in their school who has any desire to learn about information technology.

Evaluations and interviews with those working on the course or those who have completed it have been extremely positive. Students appreciated the opportunity to move through the lessons at their own pace, to interact with the instructor in a dialogue that helps customize their lessons and

experiences, and to work with their own resources. One requirement is to give a demonstration to others at their work site and many students commented that this was an important means to begin to work with colleagues.

The positives for some students proved to be the negatives for others. There are no face to face meetings, students do not begin and end with a cohort, and little chance to interact with a group through computer conferencing exists. These individuals were more likely to have difficulty in self-motivation. One suggestion to overcome this problem has been to encourage colleagues to sign up for the course together so that collegial interaction does take place.

Some students reported technical and procedural troubles and others had difficulty making equipment work and getting online. To avoid this frustration, the instructor's home number is provided and students are encouraged to contact her with problems. This effort appears to forestall some students' dropping out before they begin.

Discussion - Comparing Salient Questions Regarding Online Courses

This data, combined with the information from interviews with faculty, administrators and students of other courses, provide insight into the many issues involved in the creation of online courses. Two main areas will be addressed.

First, learners must be given a larger role in the design of online courses. It is essential that the learners be considered in a more global fashion during the planning phase than is currently the case. Certain characteristics are found in students who have completed the course with a positive view. Students identify themselves as successful when they enrolled for their own reasons rather than an employer's or colleague's reasons. Rapidly moving through the course tends to ensure successful completion, which may encourage a timeline that forces students to stay on track.

Similar to results from traditional distance learning courses, support from significant others is essential. It is also important that learners have technological skills so that they are comfortable with computers and able to use a word processor; individuals who try to learn information technologies as they learn about computers seem to give up easily. It is also reported that the

ongoing change in practice and continued use of information technology is dependent on the ease and cost of access, time available for practice and experimentation, and authentic tasks to perform using the technology. When employers interfere with practice, access, and continued use of equipment, frustration is often reported. Learners considering taking an online course should be given a checklist of these factors prior to enrolling.

Second, it is evident that certain pedagogical, organizational and institutional issues must be considered when beginning an on-line course. For example:

- Pedagogical issues include: identification of goals, philosophical changes in the teaching learning process, re conceptualization of the teachers' role, and redesign of the course delivery system.
- Organizational issues revolve around: timing, inclusion of face to face components (if possible), structure of group interactions, and minimum requirements for taking the course.
- Institutions must address issues of: faculty incentives, access and equity, credit decisions, ongoing evaluation, and continual support for students and teachers.

In many institutions, however, different offices and individuals have responsibility for these three unique areas. Unfortunately these individuals or offices may not communicate, much less collaborate, with each other. The result is often lack of organizational integrity, clear goals, and support for faculty and learners.

Implications of this study

The implications of this study involve many stakeholders in the educational community. As plans are made to introduce information technologies into all levels of educational practice, this research identifies significant issues that designers and learners must consider. It is important that learners are able to decide if an on-line course will be a positive experience for them, given individual needs and characteristics. Institutional planners must consider policy and support issues

before plunging into offering on-line courses. Educators and course designers must take a careful look at the pedagogical issues when designing these courses.

Last, a continuous and well planned research agenda must be established to inform those considering taking or offering on-line courses. We need information on the three main issues and we need further exploration of student characteristics. Further, we need to identify what content is easily and successfully taught through on-line interaction.

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